IN THE CLAIMS:

Claim 1, in re-written "clean" format, follows:

1. A method of mapping a combustor in a gas turbine engine, said method including:

determining a first burner dome to be adjusted in said gas turbine engine for a first burner mode;

adjusting a ring flame temperature at said first burner dome in said gas turbine engine to determine a maximum ring flame temperature boundary for said first burner dome;

recording into memory a plurality of parameters from a plurality of sensors coupled to said gas turbine engine operating at said maximum ring flame temperature boundary;

adjusting said ring flame temperature at said first burner dome in said gas turbine engine to determine a minimum ring flame temperature boundary for said first burner dome;

recording into memory a plurality of parameters from said plurality of sensors coupled to the gas turbine engine operating at said minimum ring flame temperature boundary;
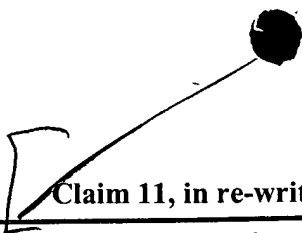
subtracting a minimum ring flame temperature at said minimum ring flame temperature boundary from a maximum ring flame temperature at said maximum ring flame temperature boundary to determine a temperature window size;

calculating a nominal ring flame temperature from the minimum and maximum ring flame temperatures when said temperature window size is greater than a predetermined minimum window size;

adjusting the ring flame temperature in said first burner dome to said nominal ring flame temperature; and

recording into memory a plurality of parameters from said plurality of sensors coupled to the gas turbine engine operating at said nominal ring flame temperature.

Claim 11, in re-written "clean" format, follows:

11.   The method of claim 2, further comprising:

repeating said adjusting said bulk combustor flame temperature if a high pressure turbine outlet temperature at said maximum ring flame temperature boundary is less than a predetermined upper limit high pressure turbine outlet temperature and said temperature window size is less than said predetermined minimum window size.

Claim 12, in re-written "clean" format, follows:

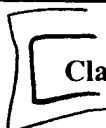12.   The method of claim 2, further comprising:

repeating said adjusting said bulk combustor flame temperature if a high pressure turbine outlet temperature at said minimum ring flame temperature boundary is less than a predetermined upper limit high pressure turbine outlet temperature and said temperature window size is less than said predetermined minimum window size.

Claim 13, in re-written "clean" format, follows:

13.   The method of claim 1, further comprising:

activating an alarm if a NOx emissions level at said maximum ring flame temperature boundary is greater than a predetermined upper limit NOx emissions level and said temperature window size is less than said predetermined minimum window size.

Claim 16, in re-written "clean" format, follows:

16.   The method of claim 1, further comprising:

activating an alarm if a NOx emissions level at said minimum ring flame temperature boundary is greater than a predetermined upper limit NOx emissions level and said temperature window size is less than said predetermined minimum window size.

Claim 17, in re-written "clean" format, follows:

17.   The method of claim 1, further comprising:

activating an alarm if a high pressure turbine outlet temperature at said maximum ring flame temperature boundary is greater than a predetermined upper limit high pressure turbine outlet temperature and said temperature window size is less than said predetermined minimum window size.

Claim 18, in re-written "clean" format, follows:

18.   The method of claim 1, further comprising:

activating an alarm if a high pressure turbine outlet temperature at said minimum ring flame temperature boundary is greater than a predetermined upper limit high pressure turbine outlet temperature and said temperature window size is less than said predetermined minimum window size.

Claim 45, in re-written "clean" format, follows:

44 45.   The storage medium of claim 32, further including instructions for causing a computer to implement:

repeating said adjusting said bulk combustor flame temperature if said NOx emissions level at said nominal ring flame temperature is greater than a predetermined upper limit NOx emissions level limit.

Claim 70, in re-written "clean" format, follows:

70.   The system of claim 62, wherein said mapping device causes said controller to adjust said bulk combustor flame temperature if a NOx emissions level at said minimum ring flame temperature boundary is less than a predetermined upper limit NOx emissions level and said temperature window size is less than said predetermined minimum window size.

Claim 71, in re-written "clean" format, follows:

71.　The system of claim 62, wherein said mapping device causes said controller to adjust said bulk combustor flame temperature if a high pressure turbine outlet temperature at said maximum ring flame temperature boundary is less than a predetermined upper limit high pressure turbine outlet temperature and said temperature window size is less than said predetermined minimum window size.

Claim 72, in re-written "clean" format, follows:

72.　The system of claim 62, wherein said mapping device causes said controller to adjust said bulk combustor flame temperature if a high pressure turbine outlet temperature at said minimum ring flame temperature boundary is less than a predetermined upper limit high pressure turbine outlet temperature and said temperature window size is less than said predetermined minimum window size.

Claim 73, in re-written "clean" format, follows:

73.　The system of claim 61, wherein said mapping device activates an alarm if a NOx emissions level at said maximum ring flame temperature boundary is greater than a predetermined upper limit NOx emissions level and said temperature window size is less than said predetermined minimum window size.

Claim 76, in re-written "clean" format, follows:

76.　The system of claim 61, wherein said mapping device activates an alarm if a NOx emissions level at said minimum ring flame temperature boundary is greater than a predetermined upper limit NOx emissions level and said temperature window size is less than said predetermined minimum window size.

Claim 77, in re-written "clean" format, follows:

77. The system of claim 61, wherein said mapping device activates an alarm if a high pressure turbine outlet temperature at said maximum ring flame temperature boundary is greater than a predetermined upper limit high pressure turbine outlet temperature and said temperature window size is less than said predetermined minimum window size.

Claim 78, in re-written "clean" format, follows:

78. The system of claim 61, wherein said mapping device activates an alarm if a high pressure turbine outlet temperature at said minimum ring flame temperature boundary is greater than a predetermined upper limit high pressure turbine outlet temperature and said temperature window size is less than said predetermined minimum window size.